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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,001	10/29/2003	Nobuhiro Nishiyama	204552030600	5307

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EXAMINER

UNELUS, ERNEST

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,001	NISHIYAMA ET AL.	
	Examiner	Art Unit	
	Ernest Unelus	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/29/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/29/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4-8, and 13-14, are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (US pat. 5,727,009) in view of Kamibayashi et al. (US pat. 5,878,069).

With respect to claim 1, Tajiri discloses a semiconductor laser assembly comprising: a substrate including a first mount surface and a second mount surface; a submount (3) mounted on the first mount surface of the substrate (2); a laser diode (4) mounted on the submount (3) and having at least one light emission point (see figure 2). In regards to the electrode, Tajiri discloses the submount (3) and an electrode (see figure 4); and a photodiode (5) mounted on the second mount surface of the substrate and having a light-receiving surface which receives light emitted from the light emission point (see figure 2). Tajiri also discloses the laser diode and the photodiode having a relay electrode. Tajiri fails to specifically disclose a monitoring photodiode and a connection to the electrode of the laser diode by a metal wire. However, Kamibayashi teaches of a monitoring photodiode being connected to a laser diode to by a metal wire (see Fig. 1b and col. 5, lines 15-30). Therefore, In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tajiri by placing a metal wire from the laser diode to the photodetector as taught by Kamibayashi to not only reduce the size of the circuit but also to provide electricity to the laser diode, as disclosed by Kamibayashi (see col. 2, lines 63-66).

With respect to claim 4, Tajiri discloses that the light-receiving surface of the photodiode (5) located approximately at the same height as or lower than the light emission point of the laser diode (see figure 2). Tajiri fail to specifically disclose a monitoring photodiode. A monitoring photodiode is well taught by Kamibayashi (see col. 5, lines 21). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tajiri with Kamibayashi to

receive light directly from the laser diode, as disclosed by Kamibayashi (see col. 5, lines 18-20).

With respect to claim 5, Tajiri and Kamibayashi disclose everything as claimed above. In addition, Tajiri discloses wherein the first and second mount surfaces of the substrate and a laser diode mount surface of the submount are approximately parallel to one another (see figure 2).

With respect to claim 6, Tajiri discloses everything as claimed above, including a submount. Tajiri fail to specifically disclose the laser diode mount surface of the submount is approximately at the same height as the light-receiving surface of the monitoring photodiode. The laser diode mount surface of the submount is approximately at the same height as the light-receiving surface of the monitoring photodiode is well taught by Kamibayashi (see fig. 1b). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tajiri with Kamibayashi to receive light directly from the laser diode, as disclosed by Kamibayashi (see col. 5, lines 18-20).

With respect to claim 7, Tajiri discloses a semiconductor laser device with a submount made of an insulating material having heat conductivity (col. 11, lines 61-65). Tajiri and Kamibayashi fail to specifically disclose the submount made of an insulating material having higher heat conductivity than the monitoring photodiode. However, it would have been obvious to one of ordinary skill in the art to realize that a submount

made of an insulating material to have higher heat conductivity than the monitoring photodiode because heat is generated in the submount, which is below the monitoring photodiode, and flows to other parts of the laser device; a higher heat conductivity enables prevention of thermal destruction of the photodiode

With respect to claim 8, Tajiri and Kamibayashi disclose everything as claimed above. In addition, Tajiri discloses the submount (3) having a length in a direction of an optical axis of the laser diode that is approximately equal to a resonator length of the laser diode (see figure 2).

With respect to claim 13, Tajiri and Kamibayashi disclose everything as claimed above. In addition, Tajiri discloses a substrate composed of metal lead (53) (see figure 21).

With respect to claim 14, Tajiri and Kamibayashi disclose everything as claimed above. In addition, Tajiri discloses the relay electrode connected to an electrode (10-18) on the substrate by a metal wire (see figure 4).

Claims 2, 3, and 10, are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (US pat. 5,727,009) in view of Kamibayashi et al. (US pat. 5,878,069) and further in view of Wang (US pat. 6,574,254).

With respect to claim 2, Tajiri and Kamibayashi disclose a semiconductor

laser device without specifically disclosing a height of the first mount surface in a direction normal to an upper surface of substrate is higher than that of the second mount surface. A height of the first mount surface in a direction normal to an upper surface of substrate is higher than that of the second mount surface is well taught by Wang (see figure 6). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above references with Wang to monitor the heat generated in the laser diode, as disclosed by Wang (see col. 1, lines 45-50).

With respect to claim 3, Tajiri, Kamibayashi, and Wang disclose everything as claimed above. In addition, Tajiri discloses the metal wire being disposed approximately consistent with an optical axis of the laser diode (see fig. 4).

With respect to claim 10, Tajiri and Kamibayashi disclose a semiconductor laser device without specifically disclosing the laser diode having a plurality of light emission points. The laser diode having a plurality of light emission points is well taught by Wang (see figure 6). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above references with Wang to provide means to automatically adjust the power generated by the laser diode, as disclosed by Wang (see col. 1, lines 50-52).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al.

(US pat. 5,727,009) in view of Kamibayashi et al. (US pat. 5,878,069) and further in view of Shiimoto et al. (US pat. 6,456,635).

With respect to claim 9, Tajiri and Kamibayashi disclose everything as claimed above, including the laser diode and the photodiode having a relay electrode (Tajiri, fig. 4). Kamibayashi also discloses a monitoring photodiode and a connection to the electrode of the laser diode by a metal wire (Kamibayashi, Fig. 1b and col. 5, lines 15-30). Tajiri and Kamibayashi fail to disclose an additional laser diode mounted on the submount. However, an additional laser diode mounted on the submount having at least one light emission point is well taught by Shiimoto (see fig. 1). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above references with Shiimoto to create a device that is able to read and write information, as disclosed by Shiimoto (see col. 1, lines 58-60).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (US pat. 5,727,009) in view of Kamibayashi et al. (US pat. 5,878,069) and further in view of Deacon (US pub. 2003/0210718).

With respect to claim 11, Tajiri and Kamibayashi disclose a semiconductor laser device with a laser diode mounted on a heat sink (Tajiri, #3) on a substrate without specifically disclosing the laser diode mounted on the submount through two separated metal layers in a junction-down manner. However, the laser diode mounted on the submount through two separated metal layers (17 and 25) in a junction-down manner is

well taught by Deacon (see fig. 1). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above references with Deacon to place the two separated metal layers to increasing the aging of a laser to help control heat, as disclosed by Deacon (see paragraph 0009). In regards to the junction down manner, neither Tajiri, Kamibayashi, nor Deacon disclose it specifically. Since junction down manner is to have a layer or layers on a substrate, then the limitation is inherently met.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (US pat. 5,727,009) in view of Kamibayashi et al. (US pat. 5,878,069), Deacon (US pub. 2003/0210718), and further in view of Yoshida et al. (US pat. 5,359,619).

With respect to claim 12, Tajiri, Kamibayashi, and Deacon teach all elements of the claim inventions above without specifically disclosing a laser diode with two light emission points from which the laser diode emits laser beams with different wavelengths, and electric power supplied the laser diode through each of the metal layers, independently of each other so that the two light emission points are controlled independently. A laser diode with two light emission points from which the laser diode emits laser beams with different wavelengths, and electric power supplied the laser diode through each of the metal layers, independently of each other so that the two light emission points are controlled independently is well taught by Yoshida (see fig. 1, col. 2, lines 32-37 and col. 15, lines 16-30). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify

Art Unit: 2828

the above references with Yoshida to establish a system having the drawing (printing) speed and data transfer speed which are two times as high as those of an ordinary system to be implemented with one optical system, as disclosed by Yoshida (see col. 1, lines 20-26)

Response to argument

Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ijuin et al. (US Pat. 6,185,239) discloses a laser device with a substrate and a photodetector without specifically disclosing the laser diode having two emission points.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is 571-272-8596. The examiner can normally be reached on 9am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2828

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Minsun Harvey
Supervisor
Art Unit 2828

E.U. 